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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/594,668	08/01/2007	Toshiyuki Hamano	1417-550	2305

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NIXON & VANDERHYE, PC
901 NORTH GLEBE ROAD, 11TH FLOOR
ARLINGTON, VA 22203

EXAMINER	
TISCHLER, FRANCES	
ART UNIT	PAPER NUMBER
1796	
MAIL DATE	DELIVERY MODE
12/10/2009	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/594,668	HAMANO ET AL.	
	Examiner	Art Unit	
	FRANCES TISCHLER	1796	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *26 June 2009*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-14* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-14* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *See Continuation Sheet*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

Continuation of Attachment(s) 3). Information Disclosure Statement(s) (PTO/SB/08), Paper No(s)/Mail Date :9/28/06,3/20/08,10/14/08,10/15/08,1/26/09.

DETAILED ACTION

Specification

Applicant is reminded of the proper language and format for an abstract of the disclosure.

The abstract should be in narrative form and generally limited to a single paragraph on a separate sheet within the range of 50 to 150 words. It is important that the abstract not exceed 150 words in length since the space provided for the abstract on the computer tape used by the printer is limited. The form and legal phraseology often used in patent claims, such as "means" and "said," should be avoided. The abstract should describe the disclosure sufficiently to assist readers in deciding whether there is a need for consulting the full patent text for details.

The language should be clear and concise and should not repeat information given in the title. It should avoid using phrases which can be implied, such as, "The disclosure concerns," "The disclosure defined by this invention," "The disclosure describes," etc.

Claim Objections

Claim 13 is objected to because of the following informalities: the comma between “terephthalate” and is “heat-treated” on the 4th line should be removed for clarity. Appropriate correction is required.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1, 3, 8 – 12 and 14 are rejected under 35 U.S.C. 102(b) as being anticipated by Kidai et al (JP 08-041182, using machine translation).

Regarding claims 1, 11 and 12: Kidai discloses (abstract, claim 1, [0006], [0008], [0009], [0011], [0012], tables I and 2) polybutylene terephthalate having intrinsic viscosity of 0.8 – 1.4, carbonyl end group of less than 30 eq/t with examples of 8, 12 and 17 eq/t, which is produced in the presence of catalysts comprising titanium compound and metal compound containing metal of Group 2A of the periodic table.

Regarding claim 3: see [0009], [0010].

Regarding claims 8 - 10: Kidai discloses ([0016], [0017]) 40 - 130 ppm of titanium and magnesium amounts of 0.5 – 3.0 times that of titanium.

Regarding claim 14: see [0012], examples.

Claim Rejections - 35 USC § 102/103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.

4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

Claims 2, 4 – 7 and 13 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Kidai et al (JP 08-041182, using machine translation).

Regarding claim 2: Kidai is silent on the crystallization temperature of the PBT. However, Kidai discloses (discussion above and examples) PBT made with the same reactants, titanium and magnesium and amounts as claimed by Applicant, in the same continuous process of esterification and polycondensation at substantially identical temperature, pressure and time as claimed. In light of the above, one would expect the crystallization temperature to be inherently the same as claimed. Since the PTO does not have proper means to conduct experiments, the burden of proof is now shifted to applicant to show otherwise. In re Best, 562 F.2d 1252, 195 USPQ 430 (CCPA 1977); in re Fitzgerald, 205 USPQ 594 (CCPA 1980).

Regarding claim 4: Kidai is silent on a haze value when prepared by dissolving 2.7g of PBT in 20 mL of a mixed solvent containing phenol and tetrachloroethane at a weight ratio of 3.2. However, since Kidai's PBT is substantially identical to the claimed invention, Kidai's haze value would inherently be the same as claimed if one were to dissolve 2.7g of PBT in 20 mL of a mixed solvent containing phenol and tetrachloroethane at a weight ratio of 3.2. Additionally, Kidai discloses ([0009], [0017], [0021], table 2) that the PBT made by the method of the invention results in low levels of terminal COOH groups and gives good color tone to the PBT with b values of -1.8, -0.5 and -0.7. Therefore, one of ordinary skill in the art would have known to optimize the

reaction conditions through routine experimentation in order to obtain said haze value since Kidai discloses the importance of good color tones.

Regarding claims 5 – 7: Kidai is silent on cyclic dimmers, trimers and methoxycarbonyl concentrations. However, since Kidai's PBT is substantially identical to the claimed invention, Kidai's values would inherently be the same as claimed.

Regarding claim 13: Kidai is silent on how much of an increase in COOH end groups would occur if one were to heat the PBT at 245°C for 40 minutes. However, since Kidai's PBT is substantially identical to the claimed invention, Kidai's COOH end group would inherently increase by 0.1 – 30 microeq/g when heat-treated at 245°C for 40 minutes.

Claim Rejections - 35 USC § 102

Claims 1, 2, 8, 9 and 14 are rejected under 35 U.S.C. 102(b) as being anticipated by Takenaka et al (US 2003/0069339).

Regarding claims 1, 10 and 12: Takenaka discloses (abstract, [0018] – [0023], [0069], [0074], [0083] - [0085], [0141],claims 1, 4, 7) polybutylene terephthalate having an intrinsic viscosity of 0.5 – 1.5 dL/g, which is produced in a presence of a catalyst comprising a titanium compound and a metal compound containing a metal of Group 2A of the periodic table, namely magnesium, thus reading on Applicant's claims. Takenaka discloses carboxyl end groups of less than 30 eq/t, preferably less than 25 eq/t, with example of 20 eq/t, reading on Applicant's range of 0.1 - 18 microeq/g since Takenaka's 0 – 25 eq/t encompasses Applicant's 0.1 - 18 microeq/g.

Regarding claim 2: see abstract, [0020], [0070], claim 1.

Regarding claims 8 and 9: see [0083], [0084], [0085].

Regarding claim 14: see [0080], [0087].

Claim Rejections - 35 USC § 102/103

Claims 3 - 7 and 13 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Takenaka et al (US 2003/0069339).

Regarding claims 3 and 7: Takenaka is silent on the methoxycarbonyl group and end vinyl group concentration. However, since Takenaka's PBT is substantially identical to the claimed invention, Takenaka's methoxycarbonyl group concentration would inherently be the same as presently claimed. Since the PTO does not have proper means to conduct experiments, the burden of proof is now shifted to applicant to show otherwise. In re Best, 562 F.2d 1252, 195 USPQ 430 (CCPA 1977); in re Fitzgerald, 205 USPQ 594 (CCPA 1980).

Regarding claims 5 and 6: Takenaka discloses (abstract, [0018, claims 2 and 6]) residual tetrahydrofuran of not greater than 300 ppm. Although Takenaka does not disclose the general term of cyclic dimmers and trimers, one of ordinary skill in the art would have known that tetrahydrofuran is a cyclic residue and, further, since Takenaka's PBT is substantially identical to the claimed invention, one would inherently expect a low amount of not greater than 300 ppm for cyclic byproducts.

Regarding claim 4: Takenaka is silent on a haze value when prepared by dissolving 2.7g of PBT in 20 mL of a mixed solvent containing phenol and tetrachloroethane at a weight ratio of 3.2. However, since Takenaka's PBT is substantially identical to the claimed invention, Takenaka's haze value would inherently be the same as claimed if one were to dissolve 2.7g of PBT in 20 mL of a mixed solvent containing phenol and tetrachloroethane at a weight ratio of 3.2.

Regarding claim 13: Takenaka is silent on how much of an increase in COOH end groups would occur if one were to heat the PBT at 245^{o}C for 40 minutes. However, since Takenaka's PBT is substantially identical to the claimed invention, Takenaka's COOH end group would inherently increase by 0.1 – 30 microeq/g when heat-treated at 245^{o}C for 40 minutes.

Claim Rejections - 35 USC §103

Claims 11 is rejected under 35 U.S.C. 103(a) as being unpatentable over Takenaka et al (US 2003/0069339).

Takenaka discloses COOH end groups of less than 30 and less than 25 eq/t, with example of 20 eq/t, but does not specifically disclose the low claimed values of 1 – 10 microeq/g.

However, Takenaka discloses ([0069]) the importance of reducing the amount of carboxyl end groups in order to enhance the PBT's resistance to hydrolysis. Takenaka also discloses (examples) PBT made with the same reactants, titanium and magnesium catalysts and same ratios as claimed by Applicant, in the same continuous process of

esterification and polycondensation at substantially identical temperature, pressure and time as claimed. In light of the above, it would also have been obvious to one of ordinary skill in the art to have optimized the reaction conditions through routine experimentation in order to obtain the least amount of COOH end groups since Takenaka expressly discloses that it is important to reduce the amount of COOH end groups.

Contact Information

Any inquiry concerning this communication or earlier communications from the examiner should be directed to FRANCES TISCHLER whose telephone number is (571)270-5458. The examiner can normally be reached on Monday-Friday 7:30AM - 5:00 PM; off every other Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jim Seidleck can be reached on 571-272-1078. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Ling-Siu Choi/
Primary Examiner, Art Unit 1796

Frances Tischler
Examiner
Art Unit 1796

/FT/